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EXAMINER

DOVE, TRACY MAE

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 01/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-14

Office Action Summary

Application No.
09/381,295

Applicant(s)
Aihara

Examiner
Tracy Dove

Art Unit
1745



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 22, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 11 20) ☐ Other:

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DETAILED ACTION

This Office Action is in response to the communication filed on 10/22/01. Applicant's arguments have been considered, but are not persuasive. Claims 1-7 and 9-15 are rejected in view of the prior art of record. Claim 8 is indicated as allowable. This Action is made Non-Final.

Continued Prosecution Application

The request filed on 10/22/01 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) is acceptable and a CPA has been established. An action on the CPA follows.

Specification

The objection to the specification has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1-7, 9, 10, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeuchi et al., US 6,096,456.

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~~See Office Action of 12/15/00 for the reasons for rejection.~~

Claims 1-7 and 9-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamashita et al., US 6,287,720.

Yamashita teaches a battery comprising a positive electrode, a negative electrode and a sole porous separator (adhesive layer) disposed between the positive electrode and the negative electrode. The three layer structure is disposed in a casing containing an electrolyte. The porous separator includes at least one insulating substance (filler). See abstract. Example 2 teaches a separator having insulating particles of alumina with an average particle diameter of 1.0 μm and a PVDF binder. The particles of alumina and particles of PVDF were mixed with each other to obtain a powder mixture. Then NMP was added to the mixture to obtain a slurry. The slurry may be applied to either or both electrodes and dried to obtain the separator. See col. 22, lines 1-36. See col. 23, lines 16-22 for disclosure of the organic electrolyte containing lithium ions of instant claim 2. Yamashita teaches it is preferred that the binder is used in an amount of from 1/500 to 5/3, more preferably from 1/500 to $\frac{1}{2}$, most preferably from 1/500 to 1/5, in terms of the volume ratio of the binder to the particles of the at least one insulating substance (alumina). See col. 7, line 66-col. 8, line 4. Note alumina is preferred as the insulating substance, col. 7, lines 33-37. The possible insulating substances are disclosed in col. 6, line 58-col. 7, line 17. The cell of Yamashita can be used in the form of a spirally wound structure in which the unit cell is spirally wound so that the negative electrode of the wound unit cell is positioned on the side of the outer

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~~surface of each wind of the spirally wound structure, or in the form of a laminate structure in~~

which a plurality of the unit cells are laminated so that each positive electrode is positioned opposite to a negative electrode through a separator. See col. 13, line 58-col. 14, line 9.

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al., US 6,096,456.

See Office Action of 12/15/00 for a discussion of the Takeuchi reference.

Takeuchi does not explicitly teach claims 11-13 of the instant invention.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because Takeuchi teaches that the positive electrode/separator/negative electrode structure is capable of free shaping. See col. 18, lines 25-30. Also in col. 34, lines 17-20 Takeuchi teaches that batteries of various shapes can be

produced. Thus, Takeuchi provides motivation to roll up or fold the positive electrode/separator/negative electrode structure of Takeuchi.

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Response to Arguments

Applicant's arguments filed 10/22/01 have been fully considered but they are not persuasive.

Applicant argues the cited prior art fails to disclose, teach or suggest all the limitations of the claimed invention. In particular, the cited prior art fails to suggest the independent claim 1 limitations of "an adhesive resin layer which is interposed in between the positive electrode and the negative electrode and is joined directly to both of the positive and the negative electrodes" where "the adhesive resin layer consists of one layer". Applicant argues Takeuchi and Hamano both disclose batteries comprising the following five layer structure: positive electrode/adhesive/separator/adhesive/negative electrode. This structure does not anticipate or render obvious the claimed three layer structure: positive electrode/adhesive/negative electrode.

Takeuchi teaches a thin film battery having a positive electrode, a separator and a negative electrode. See Fig. 1. The separator may be made of PVDF. See col. 14, lines 5-28. The separator of Takeuchi may be a composite film with a support. A particularly preferred support is alumina particles. See col. 18, lines 1-13. Therefore, the "separator" of Takeuchi is the same as the "adhesive resin layer" of the instant invention.

Takeuchi teaches a method of laminating a positive electrode, a separator and a negative electrode to form a positive electrode/separator (adhesive layer)/negative electrode laminate with the separator being interposed between the positive and the negative electrodes as a battery

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~~constituting structure. See col. 22, line 61-col. 23, line 2. Takeuchi teaches and suggests the~~
claimed three layer structure: positive electrode/adhesive (separator)/negative electrode.

All rejections in view of Hamano have been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Gabrielle Brouillette, who can be reached at (703) 308-0756. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax number is (703) 305-5433.

December 30, 2001


CAROL CHANEY
PRIMARY EXAMINER